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U. S. NAVAL HOSPITAL
Mare Island, Vallejo, California

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30 June 1949

DOCUMENTS SECTION

From: Officer in Charge, Artificial Limb Department
To: Medical Officer in Command

Subj: Monthly Report of the Experimental Work of the Artificial Limb Department

Ref: (a) Advisory Committee on Artificial Limbs ltr dtd 21 Jun 1948

1. Monthly report required by reference (a) is hereby submitted. *June*

2. A number of civilian limb fitters who attended the recent school held at Mare Island for the soft below knee socket and functional ankle and below elbow arm, have fitted up and are fitting approximately fifteen cases on their own civilian patients. Reports at the present time indicate that both the patients and the limb fitters are pleased with the method and the prosthesis.

3. The following projects are under production, experimentation and further study:

(a) Lower Extremities Section:

I. Foot and Ankle

The cable ankle joint has been shortened in the stem in order to make a shorter wooden ankle block, thereby saving a few ounces of weight. The shortened cables have been tested and all averaged over 3,000 pounds pull before separation, which is comparable to the longer type which averages 3,800 pounds.

A number of ankle blocks have been fashioned from magnesium metal. These magnesium ankle blocks appear to be as strong as the wooden blocks, but lighter. These magnesium ankle blocks have been fitted on patients for clinical trial.

II. Shank

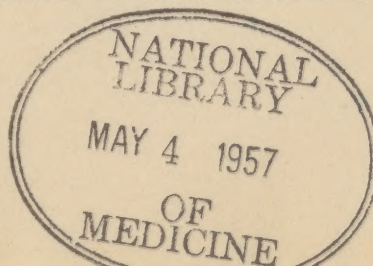
The dies for the new shank are still being constructed in the Navy Yard.

III. Knee

(a) Mechanical

Twelve cases have been fitted with the variable cadence knee joint, and each amputee so fitted feels that this new knee joint is a big improvement over the conventional type. The amputees state that:

(1) It requires only fifty percent of the stump effort in walking with the new type joint as compared to the conventional.



(2) They are able to vary their cadence at will without adjusting the brake.

(3) Once the brake is adjusted for their individual needs no further manipulation is necessary.

(4) Their walking pattern is greatly improved.

On the first cases fitted with the variable cadence knee joint a noise factor was present where the stop hit the sides of the shin. This was overcome by interposing a tab of sponge rubber between the shin and the knee stop.

(b) Hydraulic

The hydraulic unit has been received from Catranis for installation in the tilting table prosthesis.

IV. Cosmetic Problem

Additional female cases have been fitted with 1/8" Rubbatex covering of the shin. It is possible to match the color of the skin exactly by the introduction of pigment into the latex skin which is stippled and sprayed over the prosthesis.

V. Brief summary of status of models as a unit.

The accelerated walking machine is in operation and tests are proceeding on the cableankle joint.

A number of plastic shins have been constructed and these are being tested at the Industrial Laboratory in the Navy Shipyard.

(b) Upper Extremities Section:

I. An elbow lock is being designed for the above elbow arm.

II. Hands, Hooks, and Tools.

The Army lock which was provided for the Robinson hand was unsatisfactory, even with the re-design, and a new lock similar to the Army lock has been designed and is being incorporated in the Robinson hands.

III. Cosmetic Problem

No work has been done on the cosmetic problem of the arm this month.

IV. Harness and/or other outside control.

A number of below elbow arms are being fitted with the same type of single chest strap that is being utilized on the above elbow arms, thereby doing away with the loop around the opposite shoulder.

V. Brief summary of status of models as a unit.

The bilateral, pectoralis, cineplastic case has now been fitted with flexion and extension unit, and pronation and supination on the left side; and flexion and extension unit on the right side. This patient is becoming more adept in the use of his prostheses, and the power of the muscle motors is increasing.

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